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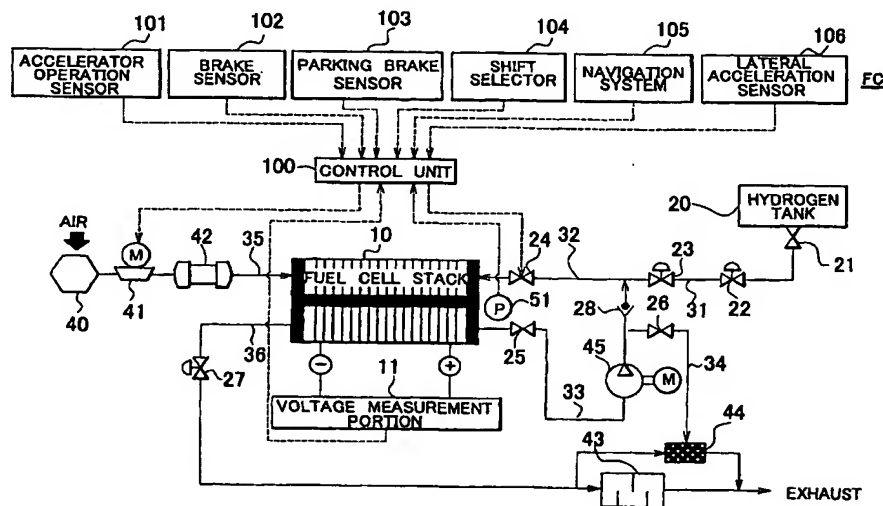
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16 June 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: FUEL CELL SYSTEM, MOBILE UNIT EQUIPPED WITH THE SYSTEM, AND CONTROL METHOD FOR THE FUEL CELL SYSTEM



(57) Abstract: A fuel cell system FC replenishes a fuel cell stack with air or hydrogen by temporarily driving a compressor (41) or a low-pressure valve (24) even during an intermittent operation mode. If air is supplied for replenishment, the amount of air remaining in an air supply system is kept substantially constant, so that the voltage fall during a stop of the fuel cell system can be curbed. If hydrogen is supplied for replenishment, the amount of hydrogen moving to the air supply system is offset, so that a delay in supplying hydrogen can be curbed. Furthermore, the fuel cell system FC inputs signals from a brake sensor (102), a shift selector (104), etc., and anticipates acceleration of a vehicle equipped with the system FC. On the basis of the anticipation of acceleration, the system FC replenishes the fuel cell stack with air or hydrogen in advance.

INTERNATIONAL SEARCH REPORT

Int'l Application No

IB 03/05314

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H01M8/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H01M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 406 805 B1 (JAMES BRIAN DAVID ET AL) 18 June 2002 (2002-06-18) the whole document	1-9,13
A	----- GAY S E ET AL: "Fuel cell hybrid drive train configurations and motor drive selection" VTC 2002-FALL. 2002 IEEE 56TH. VEHICULAR TECHNOLOGY CONFERENCE PROCEEDINGS. VANCOUVER, CANADA, SEPT. 24 - 28, 2002, IEEE VEHICULAR TECHNOLOGY CONFERENCE, NEW YORK, NY : IEEE, US. vol. VOL. 1 OF 4. CONF. 56, 24 September 2002 (2002-09-24), pages 1007-1010, XP010608966 ISBN: 0-7803-7467-3 page 1007, left-hand column, paragraph 4 ----- -/-	1-9,13

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

6 January 2005

Date of mailing of the international search report

28. 04. 2005

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INTERNATIONAL SEARCH REPORT

International Application No.

P B 03/05314

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 827 226 A (GEN MOTORS CORP) 4 March 1998 (1998-03-04) column 4, line 28 - line 29 -----	1-9,13
E	FR 2 841 044 A (RENAULT SA) 19 December 2003 (2003-12-19) claims 1,7 -----	1-9,13

INTERNATIONAL SEARCH REPORT

ational application No.
PCT/IB 03/05314

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1(partially), 2-9, 13(completely)

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1 (Partially), 2-9, 13 (Completely)

The fuel cell of claim 1 wherein the predetermined condition is that the voltage is lower than or equal to a predetermined value.

A control method as described by claim 13.

2. claims: 1 (Partially), 10-12 (Completely)

The fuel cell of claim 1 wherein the predetermined condition is that the increase in the requested electric power is anticipated.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB 03/05314

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
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			DE	69701432 T2		03-08-2000
			EP	0827226 A2		04-03-1998

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